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TABLE OF CONTENTS

INSECTS AND OTHER ARTHROPODS OF MEDICAL INTEREST IN HAWAII

C. E. Pemberton 191

PRIMARY ATYPICAL PNEUMONIA

H. J. Frachtman, Major, M. C., A.U.S. 195

PRIMARY ATYPICAL PNEUMONIA IN HAWAII

Albert G. Bower, Commander, M.C.-V (S), U.S.N.R. 198

SPECIAL CONSIDERATIONS IN THE REPAIR OF FACIAL INJURIES

Michael Gurdin, Lieutenant, M.C., U.S.N.R. 199

EDITORIALS

Politics versus Health? 203

PROGRESS IN INTERNAL MEDICINE

Coronary Artery Disease
S. E. Doolittle, M.D., Honolulu 207

RECENT ADVANCES IN SURGERY

Simplified Treatment of Fractures of the Humerus, C. C. Burgess, M. D., Honolulu 215

CLINICO-PATHOLOGIC COMMENT

Reveries of a Clinical Pathologist
E. A. Fennel, M. D., Honolulu 217

EMERGENCY MEDICAL SERVICES

Progress Report
H. L. Arnold, M. D., Honolulu 223

COUNTY SOCIETY REPORTS 227

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Insects and Other Arthropods of Medical Interest in Hawaii

C. E. PEMBERTON*

For the convenience of physicians and others interested in medical entomology, a list of insects and their near relatives is here assembled in an attempt to bring together everything of this nature which has some bearing on public health in Hawaii.

MOSQUITOES

Culex quinquefasciatus (Say):

This mosquito flies and feeds only at night. It breeds most extensively in ground pools, ditches and ponds where top minnows or mosquito fish are not present. It is brownish in color with five dull-white bands on the abdomen. It is a vector of dengue and also of filariasis, in regions where these diseases occur.

Aedes albopictus (Skuse):

Feeds mostly during the daylight hours and is the mosquito that most commonly attacks ankles, wrists and other exposed parts of the body in and around buildings. It feeds occasionally at night and is especially numerous in rainy seasons. It breeds in clear water off the ground, such as tanks, tin cans, flower vases, tree holes, etc., containing fresh water. It is black with white bands on the legs and a white stripe running down the center of the back nearly to the abdomen. *A. albopictus* is an important vector of dengue, elsewhere than in Hawaii.

Aedes aegypti (L.):

Feeds during the daylight hours like *albopictus* and breeds in similar places, although it is seldom found far away from human habitations. It is not frequently seen. The color is dark but not so black as *albopictus*. The legs have distinct white bands and the back, or upper part of the thorax, bears a distinct white series of lines running lengthwise to form a perfect lyre-shaped diagram. This insect is the usual vector of yellow fever in countries where that disease occurs, and it also transmits dengue.

No other mosquitoes are known in Hawaii and fortunately species of *Anopheles* (vectors of malaria) have never become established in the Islands, although trans-oceanic airplanes are bringing them here with increasing frequency. Spray treatment of the planes is preventing the arrival of these dangerous insects in a living condition.

FLEAS

Pulex irritans (L.) (Human flea):

Normal hosts for this flea are dogs, cats, hogs, and man. It occurs on rats and the mongoose in Hawaii but is not common on these animals. To man its bite is sharp and painful, usually leaving a reddish blotch. A dark-red flea.

Xenopsylla cheopis (Roths.) (Oriental rat flea):

This is most commonly found on rats living close to human habitations in Hawaii, although it may be taken on rats anywhere in the Islands. It is found only rarely on the mongoose and mice and has not been recorded from dogs or cats in Hawaii, although considerable search has been made for it on these animals. Being a vector of both bubonic plague and endemic typhus, it is one of Hawaii's most dangerous insects. A yellow flea.

Xenopsylla hawaiiensis (Jordan) (The Hawaiian rat flea):

Superficially this flea bears a close resemblance to *X. cheopis*. It is almost certainly a vector of bubonic plague and probably of endemic typhus as well. Eskey** determined that it occurs almost exclusively on field rats living well away from buildings and that the larvae seem to require green grass in the rat's nest for development. This flea has not been found on rats in Honolulu.

Nosopsyllus fasciatus (Bosc.) (European rat flea):

Dr. C. R. Eskey[1] was the first to record this rat flea in Hawaii. It was found only on the islands of Maui and Hawaii mostly between 1200 and 2500 feet elevation. It was on rats occurring in or near buildings. It was rare on the mongoose and mice. This flea is a known vector of bubonic plague.

Ctenocephalides felis (Bouche) (Cat flea):

This is the commonest flea in Hawaii. It is the species always seen on dogs and cats and often develops in basements and under houses in the dry seasons in Hawaii to epidemic proportions. It is often numerous on the mongoose, but is rarely taken on rats and mice. From its blackish color alone, it can be readily distinguished from the two yellowish species of *Xenopsylla* on rats. The true dog flea *Ctenocephalides canis* (Curtis), although frequently introduced on imported dogs, does not seem to survive in Hawaii and is not known to be established.

Ctenopsyllus segnis (Schonherr) (House flea):

*Entomologist, Experiment Station, Hawaiian Sugar Planters' Association.

**Eskey, C. R., 1934. Epidemiological Study of Plague in the Hawaiian Islands. Public Health Bulletin No. 213, U. S. Treasury Dept., Public Health Service.

Occurs on rats and mice and rarely on the mongoose. To date it has been found only on the islands of Maui and Hawaii. It has vestigial eyes and is undoubtedly blind. It is not known to bite man, but is a blood sucker and fully capable of doing so.

Echidnophaga gallinacea (Westwood) (Chicken or Sticktight flea):

This is a pest of chickens and also occurs commonly on rats and the mongoose. It prevails near habitations where chickens are kept. It is a very small, black insect with compressed thoracic segments and long, prominent, biting mouthparts, with which it becomes attached to the host and moves about very little. Hundreds have been tightly attached around the mouth and nose and on the ears of rats living near chicken pens. It also gets on dogs rather commonly and in other countries has been collected from several different animals.

Although the rat fleas are the most dangerous to man in Hawaii, all of the other species should be looked upon with suspicion as potential vectors of rat-borne diseases, since they occur on rats and are capable of biting human beings.

The chicken flea closely resembles the Chigoe flea *Tunga penetrans* (L.), known as the "jigger" or "sand flea" in countries where it occurs. Fortunately "jiggers" do not occur in Hawaii. They have the annoying habit of burrowing into the skin, especially between the toes, causing ulcers.

BEDBUG

The cosmopolitan bedbug *Cimex lectularius* (L.) is no respecter of persons or places. It has been in Hawaii a long time and has become particularly noticeable in Honolulu in recent years following the large, temporary increase in population. Persons bitten by bedbugs are variously affected. In susceptible individuals the bite causes considerable swelling and irritation.

CONE-NOSE OR "KISSING BUG"

An uncommon bug *Triatoma rubrofasciata* (De Geer), which is occasionally seen in Honolulu, may inflict a painful bite if touched. It was once seen in Kaimuki in large numbers in an old lumber pile. It resembles the bedbug superficially though measures fully seven-eighths of an inch in length and can fly readiy. It is black with reddish markings. Other species of *Triatoma* in California, Mexico and South America are of definite medical importance. In the latter two countries these insects are known to transmit trypanosomiasis to man.

ANTS, BEES, AND WASPS

Solenopsis geminata (Fab.) (The fire ant):

The fire ant is a small yellowish-to-red ant that usually nests in the ground under stones, etc., generally in regions of light rainfall. Upon touching the nests these ants swarm over the hands, feet or legs and immediately inflict sharp, painful stings. The sting is of short duration with no after effects.

Apis mellifera (L.) (Honey bee):

Only temporary pain and swelling usually result from the sting of a honey bee. Barefoot children are commonly stung on the feet by honey bees on lawns. It is hardly necessary to mention that individuals unaccustomed to bee stings may be seriously affected by a large number of stings received simultaneously.

Vespa occidentalis (Cress.) (Hornet):

This hornet nests in the ground and is only known on the islands of Kauai and Oahu. It occurs almost solely in the uplands. It is rather pugnacious when alarmed and will inflict painful stings. It is black and yellow.

Polistes species. (Builders of parchment nests):

The three species of *Polistes* wasps in Hawaii are familiar to most residents. They build parchment nests of many cells under eaves of houses, in bushes, etc. They have the habit of assembling together in masses indoors or in protected spots every winter. When disturbed they may sting without further provocation. Apart from the pain and swelling no serious consequences have come to our notice.

Bethylidae:

There are several species of small, mostly wingless, ant-like insects in Hawaii which occasionally get into clothing or in beds and sting upon contact. The sting is sharp and may be repeated several times. It is followed by welts of varying proportions, depending upon the individual stung. *Holepyrus hawaiiensis* (Ashmead) is especally common around buildings where stored, unpackaged foods are kept. Residents have often complained of the sting but, owing to the small size of the insect and its secretive habits it was not noticed. Minute wasps of the genus *Schlerodermus* in Hawaii have similar habits.

FLIES

Stomoxys calcitrans (L.) (Stable Fly):

The stable fly bears some resemblance to the common house fly and is usually described as a vicious biter. It will fill with blood very quickly if not disturbed. It is common in Hawaii and oc-

casionally annoys bathers at Waikiki. One easy way to distinguish it from the house fly is by its bayonet-like probosis projecting in front of the head.

Musca domestica (L.) (The house fly):

Sarcophaga species:

Lucilia species:

Synthesiomyia species:

These flies and a few others can be carriers of disease because they often have access to human foods and are also commonly attracted either to human and other excrement or decaying meats, fish and dead animals. It is common knowledge that they readily fly from contaminated material to clean foods with their feet, mouthparts and intestinal tracts teeming with organisms present in putrefying substances.

Cockroaches

Cockroaches contaminate human foods with their excrement and from the habit of disgorging parts of their food. Since some species visit and obtain food both in our homes, stores and warehouses, as well as the vilest of places such as sewers, they may be considered dangerous to human health. Of the 16 species of roaches in Hawaii, the three that are probably the most frequently met with in houses are the large reddish roach *Periplaneta americana* (L.), the Australian roach *Periplaneta australasiae* (Fabr.), which is a little smaller with white shoulder marks, and the German roach *Blatella germanica* (L.), a small, active, gray species.

Centipede

There are several kinds of centipedes in Hawaii but only one (*Scolopendra subspinipes* [Leach]) bites man. The young of this species are small and greenish in color, so unlike their large brown parents that they are often believed by the uninformed to be another kind. The bite of this centipede is painful and with persons susceptible to the poison, severe swelling follows and remains for several days. The bite is made by the first pair of legs, each of which is terminated by a powerful claw through which poison is ejected from a large poison gland at the base. The bite is easily diagnosed by the presence of two reddish spots where each claw has penetrated the skin.

Scorpion

One species of scorpion (*Isometrus maculatus* [De Geer]) is commonly seen in Hawai under boards, rocks, concealed in folded towels, etc. It is not pugnacious and its sting, though mildly painful and poisonous, is rarely reported.

Ticks, Spiders and Mites

The brown dog tick, *Rhipicephalus sanguineus* (Latr.), is well known as a vector of malignant jaundice of dogs and is commonly seen in houses in Hawaii where dogs are allowed indoors. It can and does bite man, although we do not often hear of it. It transmits a rickettsial disease of man in Mediterranean countries, known as fievre boutonneuse.

Latrodectus mactans (Fabr.) (Black Widow Spider):

This spider has been in Hawaii since at least 1925 and is now spread over most of the Territory, excepting the island of Kauai. It occurs mostly where the rainfall is light. The result from its bite may be serious but cases are rare in Hawaii. The bite is not usually painful at first but grows in intensity for several hours thereafter. *Latrodectus geometricus* (Koch.) a closely related spider but not so black and with brownish-banded legs, was discovered in many parts of Honolulu during 1939. It has the typical reddish hourglass marking on the under side of the abdomen, similar to that on the true Black Widow Spider. The mandibles are small and although the bite is undoubtedly poisonous this spider does not have the bad record of the Black Widow.

There is no reason to believe that the bite of the Black Widow Spider is less dangerous in Hawaii than elsewhere, although to date no fatalities have been recorded from its bite in the Islands.

Pediculoides ventricosus (Newport):

This is a minute louse-like mite which normally feeds on certain insects. Occasionally it multiplies where insects are attacking stored grains and other foods and will swarm over persons handling the material, causing an acute, itching dermatitis.

Dermanyssus gallinae (De Geer) (poultry mite):

Though primarily a serious pest of poultry, this minute gray mite also bites man and sometimes causes irritation to the hands and arms of men handling poultry. Another mite tentatively identified as a species of *Dermanyssus* occurs on birds in Hawaii and sometimes becomes excessively numerous in the nests. When nests are built under the eaves of houses the mites crawl into nearby windows and doors and cause much irritation and occasional skin rashes on people sleeping near these nests.

Laelaps echidninus (Ber) (rat mites):

Laelaps hawaiiensis (Ewing):

Two active, blood-sucking mites are common on rats in Hawaii. We have no record of their biting man in Hawaii; but they are nearly always full of blood when seen on rats and are fully capable of biting man.

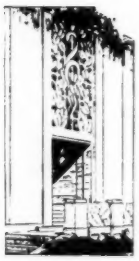
Tyroglyphidae:

One species of so called "Sugar Mite" occurs in flour, dried fruits, etc. It was recently found in quantity in some packaged cereal meal and powdered dog food. The mites are almost microscopic in size and will cause a mild dermatitis if such infested material is handled.

Fortunately redbugs or "Chiggers" do not occur in Hawaii. These mites (*Trombidiidae*), when young, attach themselves to the skin and cause a severe irritation and itching.

The Sucking Lice:

Both the human head louse *Pediculus humanus capitis* (De Geer) and the pubic louse *Phthirius pubis* (L.) occur in Hawaii.



Primary Atypical Pneumonia

H. J. Frachtman, M.D.

Major, Medical Corps, A.U.S.

The disease complex which we have chosen to call primary atypical pneumonia is of considerable interest to the medical newcomer in these islands. Another name which would aptly describe the condition is acute interstitial pneumonitis. A common term is oahu pneumonia.

My first introduction to it was during the winter of 1940-1941 in the gulf coast area of the mainland, but the disease was not prevalent enough to permit any comprehensive study. There we were more accustomed to the usual lobar and lobular pneumonias. During the past several months we have had the opportunity to study many of these cases, to follow their course with frequent x-rays, and to observe the efficacy of various forms of treatment.

Clinical Course

The onset of atypical pneumonia is usually gradual, over a period of three or four days, but may be quite abrupt. Headache, which may be very severe, malaise, and chilly sensations are frequently the first symptoms noted. A non-productive cough appears very soon or may be present from the onset. The cough becomes progressively worse; in most cases it is the leading symptom and the most common cause for admission. Sore throat and nasal discharge may be concomitant symptoms, but are not necessarily present. Pain in the chest and back are commonly complained of. The absence of sputum in most cases is noteworthy. In the few cases that have produced sputum, it has been mucoid or mucopurulent, never bloody or rusty. The temperature may rise as high as 104 or 105 F., but fever of this degree is not maintained long. Cyanosis has been noted in severe cases.

We have studied the temperature curves and find that there is no definite pattern. It may demonstrate an abrupt fall from high levels in twenty-four to thirty-six hours; it may be a low grade fever of the continuous type, lasting several days. One or two of our cases have come in with temperature elevations of less than a degree, but with extensive pulmonary infiltration.

The hematologic findings are likewise inconsistent. The red cell count is not affected, and the white cell count may be either entirely normal or elevated, with a shift to the left.

It has been found that the x-ray appearance of the lesion and the physical findings are not well correlated. In ordinary pneumonias we expect the impaired resonance, the bronchial breathing, the fine moist rales, and the increased fremitus to indicate the extent of the lesion and the x-ray confirms these findings. One cannot expect this in atypical pneumonia. Minimal physical findings, such as slightly diminished breath sounds or a few scattered moist rales, may be found in cases where an entire lobe has been densely infiltrated. The x-ray may show infiltration from the hilum toward the periphery, or present a diffuse patchy appearance. The lesion may be unilateral or bilateral, and may involve one or more lobes, but, as a rule only one lobe is involved.

Pathology

The pathology of the disease is not completely known. It appears to be an infiltrative process, probably a peribronchiolar infiltration. There is not the consolidation which occurs in lobar and lobular pneumonias. The rapid clearing of some of these lesions substantiates this point.

Furthermore, the cause of the disease is unknown. Wherever possible the sputum has been studied bacteriologically, but without successfully identifying any specific organism. It is quite likely that a virus is the offender.

The contagiousness of this type of pneumonia is minimal. It is not known definitely whether one attack confers immunity, but during the time that we have observed the disease, we have had no patient admitted with a recurrence.

Differential Diagnosis

Several diseases must be considered in the differential diagnosis:

Influenza: In influenza, prostration is greater; marked injection of the conjunctivae and nasopharynx is usually present; leukopenia is characteristic; there are no physical or x-ray signs of pneumonia, unless influenzal pneumonia supervenes.

Approved for publication. The views expressed are those of the author, and are not to be construed as official or as reflecting those of the War Department.

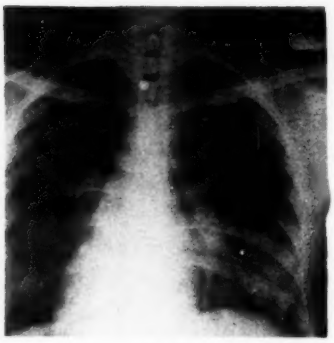


Fig. 1. Case L. S. Radiograph of chest admission.

Fig. 2. Case L. S. Radiograph of chest seven days after admission. Febrile reaction for first three days; temperature normal thereafter.

Fig. 3. Case L. S. Radiograph of chest nineteen days after admission.

Fig. 4. Case H. M. Radiograph of chest on admission.

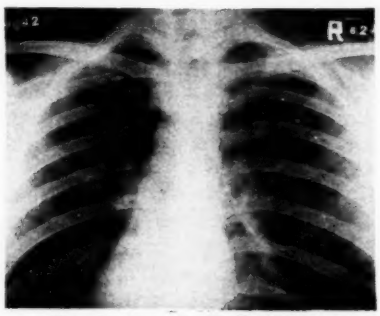


Fig. 5. Case H. M. Radiograph of chest thirteen days after admission. Febrile reaction for first six days; temperature normal thereafter.

Fig. 6. Case A. C. Radiograph of chest on admission. Note location of pneumonic process in right upper lobe.

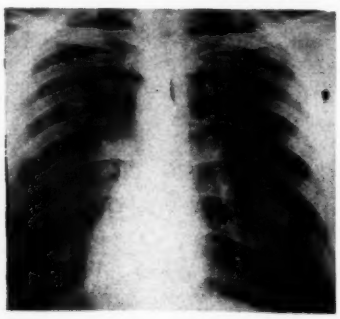


Fig. 7. Case A. C. Radiograph of chest twenty days after admission. Febrile reaction for first six days; temperature normal thereafter.

Fig. 8. Case R. W. Radiograph of chest on admission.

Fig. 9. Case R. W. Radiograph of chest fifty-three days after admission. Febrile reaction for first nine days; temperature normal thereafter.

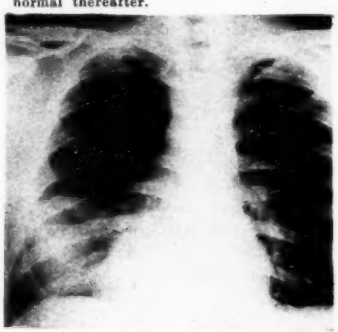


Fig. 10. Case F. V. Radiograph of chest on admission.

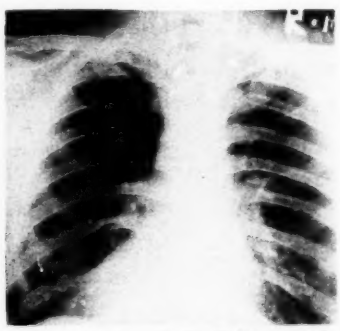


Fig. 11. Case F. V. Radiograph of chest twenty-six days after admission. This patient had a temperature of 99 F. on the morning of his second hospital day; during the rest of his stay in the hospital, his temperature was not normal.

Bronchitis: An x-ray of the chest is usually necessary to make the differentiation. The borderline between the two conditions is not very sharply defined, however, either clinically or roentgenologically.

Lobar and lobular pneumonia: Pulse and respiratory rates are more elevated; the white blood count is higher; the sputum is more profuse and may be of a different type, for example, the rusty sputum of lobar pneumonia; the physical findings and the x-ray findings correspond more closely; the bacteria can be found in the sputum; the response to the sulfonamides is more marked.

Pulmonary tuberculosis: At times the roentgenographic appearance of the lesions of atypical pneumonia simulate those of tuberculosis. Serial x-ray studies, the presence of tubercle bacilli in the sputum, and the clinical course will distinguish between the two conditions.

Psittacois, Q fever, and pulmonary coccidiomycosis may be confused, but they are uncommon and the isolation of the infectious agent or the appropriate immunological reactions will distinguish them from atypical pneumonia.

PROGNOSIS

The prognosis is good, and in our series of cases there have been no fatalities. Unfortunately, military regulations prohibit the disclosure of the number of cases in our series. There are no clear-cut complications. We have seen no complicating pleural effusion or empyema. Even though the mortality is nil, the morbidity is considerable. Morbidity is especially important in military medicine. Some of our patients have required hospitalization of more than thirty days; one patient was hospitalized for over sixty days. The average period of hospitalization was from three to three and one-half weeks. To be discharged, a patient must not only be free of fever, but his lung fields must present normal x-ray findings. The latter may be difficult to attain. In civilian practice, where the patient may do lighter work than usual or work only part-time, this may not be so important. In military practice the patient must be capable of full duty when he is discharged from the hospital. Such lesions therefore must be completely cleared. Perhaps this accounts in part for the absence of recurrence and relapse.

TREATMENT

We have used various sulfonamide preparations—sulfanilamide, sulfapyridine, sulfathiazole, and sulfadiazine—and are doubtful as to their efficacy. At the present time, we use them only if the patient is unusually toxemic or if the temperature is excessively high. We have found that such cases seem to do slightly better when sulfonamides are given; in the average case, the course of the disease is not changed.

Symptomatic and supportive treatment give good results. Headache and pain are controlled by analgesics. Cough is alleviated by cough mixtures containing expectorants and small doses of codeine. Fluids should be forced; liquid or soft diet is given during the acute phase; sedation may be necessary.

When cyanosis is present, oxygen given with a BLB mask, a few minutes each hour, has given excellent results.

If sulfonamides are used, they should be given in the same way as in the ordinary type of pneumonia, that is, 4 grams on admission and 1 gram every four hours, day and night.

SUMMARY

1. Primary atypical pneumonia is frequently encountered among the military personnel in this area.

2. The usual clinical findings are cough, headache, muscular aches, chilly sensations, fever, and variable chest findings.

3. An x-ray of the chest is necessary for accurate diagnosis.

4. The mortality is negligible, but the morbidity is high, making the disease an important problem.

5. Treatment is essentially symptomatic, but in a few selected cases, sulfonamides may be used.

Primary Atypical Pneumonia in Hawaii

ALBERT G. BOWER

Commander, M.C.-V. (S), U.S.N.R.

For the past two winters in the Naval Hospital at Pearl Harbor, we have been seeing a bizarre group of atypical pneumonias, quite different in clinical aspects and course from the customary lobar and broncho-pneumonias, and from influenza complicated by pneumonia.

The majority of cases occur in the age group 20 to 30. The onset is typically very insidious, the early symptoms being mild and consisting of vague headache, anorexia, malaise, and lumbar backache with some degree of aching in the extremities, particularly the legs. Asthenia and languor are noted by the second or third day, and chilliness is present in over half the cases by the third or fourth day. Cough is often delayed in appearance. In many instances severe, intractable frontal headache lasting several days is the chief complaint. In some instances, the onset is with a true chill, and in these, roentgenograms taken immediately show consolidation or other abnormalities in practically every case. In a very few instances joint pains occur concomitantly with the generalized muscular aching. These patients are usually much depressed.

Greenish or white mucopurulent material is usually raised on coughing by the third or fourth day, but in only two instances have we seen rusty sputum, and blood-tinged sputum has been absent.

Fever usually is not high. It varies widely in each twenty-four-hour period, being highest as a rule on admission and in the mornings, tending toward normal by evening. At times the pulse rate has been very high, but as a rule it is lower than expected for the degree of fever present. In the prodromal stage, fever is usually low (99 to 100 F.)

Positive physical findings consistently lag far behind those obtained with x-ray. In some very sick individuals, the roentgenographic changes are pronounced, but so central that no slightest adventitious findings are present upon physical examination. Again, merely suppressed breath sounds, impaired resonance, or a few fine, crackling rales which disappear on coughing may be heard. In most of the severer cases, true tubular or bronchial breathing is heard, and this tends to reach its fastigium when the tendency of the fever is to disappear. Asthenia tends to be prolonged during convalescence in these severer cases.

In over half our cases the white blood count was under 7,000, and in those showing 10 to 11 thousand, the tendency was to drop to normal or lower upon adequate hydration. The picture is bizarre. While a large percentage showed a normal neutrophile count, large monocyte counts of 8 to 17 were not unusual, though lymphocytes were seldom increased. Anemia was conspicuous by its absence. Leukopenias to 4,000 were noted. Pneumococci were very rarely present, and in only two instances were they type-specific when found.

There were no characteristic x-ray findings. These varied from minor patchy infiltrations to the picture of a true lobar pneumonia. In the most severe cases the widespread, floccular, "snowflake" appearance of the lobar shadows persisted sometimes for weeks following defervescence and abeyance of symptoms.

The differential diagnosis is comparatively easy after a number of these atypical cases have been seen, but one must always be on guard against missing some of the other communicable diseases giving normal or diminished white counts, chills, low pulse-fever ratios, and bronchitis or pneumonia. Typhoid is not so much to be feared, because of its extremely low incidence in the Naval service through immunization. Influenza, brucellosis, and malaria are to be considered.

The etiology is undetermined. Treatment is entirely supportive and symptomatic; with the exception of those cases secondarily infected with pyogenic cocci, as evidenced by a high white count, sulfa-drugs are entirely useless, and may add to the burden of the patient's defense. In the few very critical cases, oxygen has been helpful, and we believe they have been made more confortable and the duration shortened through the intramuscular injection of 10 grains (0.65 gm.) of camphor every eight hours. This tends to increase the ventilation of the lungs and affords general support to the circulatory system.

*U.S. Naval Hospital, Aiea Heights, Pearl Harbor.

Approved for publication. The views expressed are those of the author, and are not to be construed as official or as reflecting those of the War Department.

Special Considerations in the Repair of Facial Injuries

MICHAEL GURDIN, M.D.
Lieutenant, M. C., U.S.N.R.

That "A man's face is his fortune" may not be entirely true, but there can be no denying that a disfigured face is a catastrophe in any station of life. Exposure renders the face susceptible to trauma more often than any other part of the body, except the extremities, and every doctor, irrespective of his specialty, is called upon to treat facial injuries

Aside from the usual considerations of preservation of life and function, the prevention of disfigurement must play an inordinately important part in the treatment of injuries of the face if these patients are to return to a normal social, economic and psychological life. The attainment of this important objective calls for the application of the finest surgical judgment and the employment of accurate surgical technique.

The ultimate aim is *primary union* of the injured tissues. In many cases primary union will eliminate the necessity of secondary repair; in the others it will minimize secondary repair and facilitate the final result. In those cases requiring secondary repair we can facilitate this repair by (1) preventing infection; (2) preserving all vital tissue; (3) preventing stitch marks; and (4) avoiding badly placed scars in debridement or relaxation incisions.

DIAGNOSIS

Every injured patient is entitled to a thorough physical examination. All injuries, of course, are treated in relation to their seriousness and urgency, shock and intracranial injury being of primary consideration. Fracture of the facial bones must be diagnosed and properly treated. It is well to remember that these fractures are not ordinarily seen in routine skull roentgenograms; it is wiser to suspect them from physical signs, confirming these suspicions by x-rays of the special bones involved. The following physical signs should be looked for:

Assymmetry of the palpebral fissures
Ecchymosis of the eyelids
Infra-orbital anesthesia
Assymmetry of the cheek prominences
Nasal deformity
Malocclusion of the teeth.
Diplopia

PREPARATION FOR SURGERY

Having uppermost in mind the prevention of infection, the surgeon should observe strictest aseptic precautions. Emergency bandages are removed from the wounds and active bleeders picked up with sterile mosquito forceps, being careful to clamp only the vessel. General anesthesia is rarely needed, but if it is, intravenous sodium pentothal is preferred. The area surrounding the wound is shaved and cleansed with a mild white soap and sterile water. Hydrogen peroxide is useful in removing dried blood; ether or carbon tetrachloride will facilitate the removal of grease. Imbedded dirt and road grime must be completely removed to prevent tattooing and a permanent "dirty face." Ordinarily these particles can be picked out or washed off with a fat solvent but occasionally it is necessary to use a rather stiff scrubbing brush. This procedure will traumatize the area but since the skin is already abraded, a deeper abrasion is preferable to a permanent discoloration. Tincture of green soap or a chemical antiseptic should never be poured into an open wound of the face.

SURGICAL REPAIR

Debridement in facial injuries must be extremely conservative. A few millimeters of tissue lost from the tip of the nose, the rim of the ear, the angle of the mouth, or the canthus of the eye, may mean painful and costly subsequent repair, permanent disfigurement, or both. Not one millimeter of potentially viable tissue should be sacrificed at the primary repair. Doubtful tissue should be treated as viable and every attempt made to conserve it by warm packs, supportive dressings and the avoidance of further traumatization by sutures. We have often been pleasantly surprised by the healthy appearance of a flap which twelve hours before had been of very doubtful viability.

Frankly macerated and devitalized tissue should, of course, be debrided. A razor-edge knife should be used; skin should never be "clipped" with scissors. "Flap" or "tongue" lacerations should be loosely sutured to the periphery of the wound to prevent retraction and then treated with a pressure bandage in the manner of a free skin transplant.

The slogan of every doctor with a needle and thread in his hand doing facial repair should be *approximation without strangulation.* Suturing must be atraumatic and accurate. These two ideals cannot be accomplished by using abdominal or orthopedic instruments, nor can such a closure be accomplished on the face by the use of skin clips. Ordinarily we do not care to chance burying nonabsorbable tissue in a traumatic wound, but use

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000 plain catgut, both for tying bleeders and for subcutaneous approximation of tissue. In the skin a very fine silk, dermal, or horsehair suture is used on an atraumatic cutting needle. The wound edges are picked up with skin hooks (made by bending a No. 6 dental explorer) and are not traumatized by crushing with thumb forceps. Wound edges are never approximated under tension. If proper relaxation cannot be obtained by undermining the wound edges, the raw area is covered either by a sliding flap from the vicinity of the wound or a free graft at the time of primary repair. Often the proper application of a graft about a centimeter in diameter makes the difference between a good repair and a permanent deformity.

In our experience sulfanilamide or sulfathiazole powder dusted into wounds of the face definitely delays healing and predisposes to serum formation, but these mild complications are infinitely to be preferred to infection and should be risked if mechanical sterilization of the wound is doubtful. Tetanus or tetanus-gas bacillus antitoxin is used when indicated.

DRESSINGS AND BANDAGING

Dressings must be purposeful, never routine. A properly applied dressing is comforting to the patient, not irritating. Dressings must protect the fresh wound from trauma and infection, prevent postoperative hematoma, and promote rest for the wound and surrounding tissues. If these objectives cannot be accomplished, as in wounds of the lips, dressings should be eliminated altogether, keeping the fresh wounds clean with peroxide swabs and coated with sterile vaseline.

Physiologic rest is an essential factor in proper healing. To accomplish this, a head bandage is used, laughing and talking are avoided, and a liquid diet taken through a straw is prescribed to avoid chewing. The eyelids, if seriously injured, are put at rest by suturing the upper and lower lids together and covering with a snug eye-pad. In the placement of all head bandages, and in ear injuries especially, care should be taken to prevent too much pressure on the ear. In bandaging the lacerated external ear, after the wound is covered with sterile vaseline gauze, the space between the posterior surface of the ear and the head is filled with cotton wadding cut to fit. The anterior surface of the ear is accurately filled with cotton pledgets, wrung out in saline and packed into the folds. This layer is covered with cotton wadding and gauze fluffs and secured by a head bandage. This method effectively "splints" the external ear and promotes healing.

POST-OPERATIVE CARE

Sulfa drugs are given postoperatively when indicated. In clean wounds all skin sutures are removed after forty-eight to seventy-two hours. All sutures must be removed in ninety-six hours if stitch marks are to be avoided. Wound edges are then supported by adhesive strips. Localized serum collections in the wound are evacuated and warm compresses are employed when indicated.

In care after healing has occurred, a great opportunity is presented for turning an average result into a superior one, with a resultant extremely grateful patient. We have seen poor final results and dissatisfied patients because these patients were discharged as soon as wound healing had occurred. Remember, not only the patient, but his family and friends also see the fresh scars and comment on them, often disparagingly. During this state of healing the patient wants to feel that everything possible is being done for him.

In moveable areas we like to support the wound edges with adhesive and relieve tension for about six weeks after the stitches have been removed. Any scar which shows a tendency toward thickening or keloid formation is promptly treated by x-ray or radium. Residual subcutaneous induration is treated by daily warm packs followed by massage. Although supervised, this latter therapy is administered by the patient at home.

SECONDARY REPAIR

Seldom is a primary repair so successful, or so poor, that no secondary improvement is possible. In cases where secondary repair is frankly indicated it is the physician's responsibility to suggest it. In borderline cases a good indication is the patient's attitude; for he will ordinarily ask if further improvement is possible. In such cases the patient should certainly have the benefit of further surgery if at all possible. Should the attending physician consider further treatment inadvisable, this responsibility should be shared by consultation. Here the suggestion of future care is more heartening than a flat denial.

Secondary repair can ordinarily be undertaken in six to nine months after primary healing. In infected cases, repair should not be undertaken in less than twelve months after complete healing.

SUMMARY

1. The cosmetic result is extremely important in facial injuries.
2. Avoid stitch marks and secondary scars.
3. Debridement must be conservative.
4. Dirt imbedded in the skin must be removed.
5. Raw surfaces are covered at the primary repair.
6. Bandaging must be purposeful.
7. Post-operative care should be diligent.
8. Secondary repair is advised when indicated.

HAWAII MEDICAL JOURNAL

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EDITORIALS

POLITICS VERSUS HEALTH?

When a law affecting the public health is proposed to the Legislature, a fair question and one deserving of a frank and honest answer would be: Will the changes proposed by this measure benefit the health of the community?

Senate Bill No. 92, passed by the 1943 Territorial Legislature, signed by the governor, and now a law of the territory, proposed fundamental changes in the organization of the Territorial Board of Health scrapping in their entirety statutory guarantees that the Commissioner of Public Health be an individual of proper experience and educational background, and modifying the structure of the Board of Health in such a way as to make it easily susceptible to political whims and idiosyncrasies.

Yet to date, to the best knowledge of the writer, not one word or argument tending to indicate that these changes will make for better health conditions in the Territory of Hawaii has been voiced, either by the introducer of the measure or by those who voted for it. Not one improvement in public health administration is possible under the new law which was not possible or more likely of accomplishment under the provisions of the law which was discarded; but under the new law there are potent possibilities for deterioration in public health matters against which the old law provided definite safeguards.

The essential changes in the law have to do, first with the appointment of and the qualifications prescribed for the Commissioner of Health (who under the new law is designated as President of the Board of Health); and secondly with the manner of appointment and the terms of office of members of the Board of Health.

The repealed law provided that the Commissioner of Public Health should be appointed by the Board of Health; the new law places the power of appointment in the hands of the Governor of the Territory.

The repealed law provided:

The Territorial Commissioner of Public Health shall be qualified as follows: He shall be a duly licensed doctor of medicine of the Territory of Hawaii with the additional qualifications as listed below, or he shall be a medical doctor who shall have graduated as a doctor of public health from a recognized school of public health, both course and school being subject to the approval of the Board of Health. The appointee to the position of Commissioner of Public Health shall have had in addition no less than five years of practical experience in general public health activities. He shall have a technical or practical knowledge of sanitary science. His experience as aforesaid shall have been acquired in whole or in part by active public health work during the past ten years and in any event it shall have been the equivalent, in the opinion of the Board, to that obtained through actual full time service in an organized public health department of a community of not less than 100,000 population, or such experience shall have been acquired as a regular commissioned medical officer of the United States Public Health Service, of the United States Army, or of the United States Navy, through active service for not less than eight years, during no less than five of which said commissioned officer as aforesaid shall, in the opinion of the Board, have had a practical experience in general public health activities equivalent to full time service in an organized public health department as aforesaid. Provided that the Board may, in its discretion, accept in lieu of the foregoing requirements the certificate of the Surgeon General of the United States Public Health Service that an applicant, because of the duties performed by him to the knowledge of said Surgeon General is suitably equipped by experience and training to act as a commissioner of Public Health of the Territory of Hawaii.

Such qualifications, the most skeptical must admit, provided a reasonable guarantee that the man charged with the supervision and care of the health of the people of the territory would be a man capable of exercising such care with maximum wisdom and skill.

The law as passed eliminated all reference to qualifications, but leaves the power of selection entirely in the hands of the Governor.

To date, there appears to be a certain unanimity of opinion that Governor Stainback's appointments to public office have indicated a fundamental appreciation of merit. There is no reason to believe that he has any intention of departing from what appears at this time to be his policy in selecting men for important public office.

However, it would be naive to believe that there were not purely political considerations behind the introduction of the new law, and its easy passage by the legislators; or to assume that such political influences would not continue to be exerted in regard to appointments to or administration of the Board of Health. The present governor may be immune to such influences, but there will be other days and other governors, as there have been in the past. The repealed law was, in public health matters, some degree of insulation against such political considerations.

The defunct law provided for "staggering" of the terms of members of the Board of Health. The appointive power lay with the governor, but members' terms of office overlapped in such a way that the terms of two expired each year, and no governor in one term would ordinarily appoint a whole new board.

It is an interesting commentary on things as they are in Hawaii that this provision, passed in 1937 by the House of Representatives, and Senate, and made law by the signature of the Governor, was arbitrarily if somewhat irregularly repealed by resolution of the 1943 Senate, demanding the resignations of all members of the existing board.

The law, as amended by the 1943 legislature, provides for the appointment of the whole board by the governor for a four year term.

The bill was passed by both houses, signed by the governor, and is now a law.

So much for water that is over the dam.

Analysis of the new law and its provisions reveals nothing that need necessarily stand in the way of the appointment of a highly qualified chief health officer of the territory nor of a Board of Health, excellent in the calibre of its personnel and capable of serving well the health needs of the Territory. Perhaps it is unfortunate, but it is nevertheless fact, that the new President of the Board of Health, reviewing the temper and the actions of the 1943 legislature, would be innocent indeed if he did not recognize that it will be expedient first to study well the political implications of his policies and decisions before evaluating them purely from a standpoint of good or bad public health policy.

The factor determining whether a prospective government physician on one of the outlying islands shall be appointed is likely to be not how good he is as a doctor, or whether he resides in the district he will serve, but how friendly he may be with the senator in the district.

The law as it now stands places the entire responsibility for appointment of the President and members of the Board of Health squarely with the governor. His responsibility is complete and unequivocal.

There is nothing in the law which should prevent the governor from appointing a well-qualified man,—although if a well qualified man at this or some future time is not available in the Territory, the residence requirement laws will certainly handicap a governor in exercising a proper choice. There is much reason to believe, if the quality of Governor Stainback's previous appointments is a criterion, that the man he selects will be well qualified; also that the men whom he will name to the Board of Health will be physicians and laymen of intelligence and a high sense of civic responsibility.

If this is the case, wise and efficient functioning of the Board of Health will be assured and betterment of the public health in Hawaii will be a natural consequence.

But one fact will not be forgotten:

The law which was to keep public health matters in Hawaii out of politics is dead!

PROGRESS IN INTERNAL MEDICINE

CORONARY ARTERY DISEASE

Clinical and Pathological Studies

A new term, coronary insufficiency, has appeared in the recent medical literature of coronary artery disease. It appears to fill an important place in its clinical classification. A number of studies of the past few years have shown that a simple classification signifying coronary arteriosclerosis with or without associated spasm (angina pectoris), and coronary artery occlusion, or thrombosis, or both, is not adequate in either a clinical or pathologic sense.

Clinical studies have shown that atypical coronary occlusion is not infrequent. Pollard and Harvill in 1940 reported 32 or 8.5 per cent of 375 cases of coronary occlusion as "painless" (Pollard, H.M., and Harvill, T.H.: Painless Coronary Occlusion, *Am. J. Med. Sci.* 199:628 [May] 1940). In these cases the outstanding symptoms were dyspnea, nausea and vomiting, dizziness or fainting, and collapse.

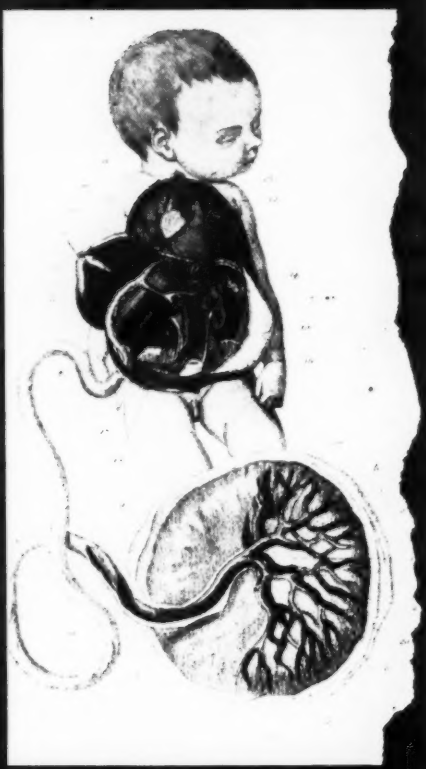
The occurrence of unsuspected coronary thrombosis in patients with hemiplegia is recorded by Dozzi (Dozzi, D. L.: Unsuspected Coronary Thrombosis in Patients with Hemiplegia, *Ann. Int. Med.* 12:1991 [June] 1939). Of 66 patients suffering from hemiplegia, 12 per cent had electrocardiographic evidence of coronary occlusion.

Coronary occlusion may occur in association with (perhaps initiated by) hemorrhage, shock (postoperative), or pulmonary embolism and other acute circulatory incidents. In these cases the symptoms of the associated condition may overshadow and mask the cardinal diagnostic signs of coronary infarction and so make it appear atypical.

Furthermore, clinical and pathologic studies show that the relationship of coronary occlusion to myocardial infarction is not clear-cut, as has been assumed in the past. Well marked narrowing or even complete occlusion of one or more of the major coronary arteries and their primary branches is found on pathologic examination of hearts of a considerable number of individuals who have no typical cardio-vascular signs or symptoms. This was brought out in the important clinico-pathological studies of Blumgart, et. al. (Blumgart, H. L.; Sclesinger, M. J., and Davis, D.: Studies on the Relation of the Clinical Manifestations of Angina Pectoris, Coronary Thrombosis and Myocardial Thrombosis to the Pathological Findings, *Am. Heart J.* 19:1 [Jan.] 1940, and Blumgart, H. L.; Sclesinger, M. J., and Zoll, P. M.: Angina Pectoris, Coronary Failure and Acute Myocardial Infarction. The Role of Coronary Occlusions and Collateral Circulation, *J.A.M.A.* 116:91 [Jan. 11] 1941). They published several studies based upon a special coronary artery injection and dissection technic applied to 125 and finally to 355 hearts. The failure of coronary occlusion to cause serious myocardial damage is shown by their studies to be due to the establishment of adequate collateral circulation. Though small inter-artery communications exist in all hearts, these are inadequate for collateral circulation in case of sudden closure of normal vessels. Collateral arterioles of less than 40 microns were not found in normal hearts no matter what the age of the patient. Where there had been progressive arteriosclerosis of the coronary arteries, however, or where there had been pre-existing hypertensive or valvular heart disease with cardiac hypertrophy, the coronary inter-arterial communications were often of sufficient size to furnish adequate blood supply to parts of the myocardium whose main arterial trunks were blocked. The discrepancies between clinical diagnosis and pathologic conditions in the heart are due largely to the fact that the terms coronary thrombosis or occlusion actually refer to a pathologic event which may give rise to various clinical symptoms and signs or indeed to none (provided collateral circulation is adequate). The symptoms usually designated as being characteristic of coronary obstruction are in fact due to acute myocardial infarction.

The pathologic findings in their cases of angina pectoris support the anoxic theory of its causation. In all cases of angina pectoris in which valvular disease or arterial hypertension was absent, there was pathologic evidence of diminished blood supply, either by narrowing or by actual occlusion of one or more of the main coronary arteries.

Episodes of coronary "failure" differ from angina pectoris in the longer duration of the attack and in some instances in the altered character of the pain. The implication is that myocardial ischemia,



This interesting study of fetal circulation is taken from Antonin Bossu's Anthropologie Etude des Organes, Fonctions, Maladies de l'Homme et de la Dame published in Brussels in 1847.

FOR COMPLICATIONS AS OLD AS TIME

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being more prolonged, results in greater myocardial damage, necrosis and eventually fibrosis. The pathologic studies quoted above suggest that this term should have a much more extensive use than is common in the clinical classification of cases of coronary artery disease.

Classification of Coronary Artery Disease

Following the work of these authors we may then recognize three clinical grades of significant coronary artery disease and associated myocardial damage; namely, (1) angina pectoris, (2) coronary insufficiency, and (3) myocardial infarction.

Angina Pectoris

Angina pectoris is an indispensible term, partly because of long usage. Though its implications are less terrifying than formerly, because myocardial infarction is now well recognized and these cases are usually separated from the group, it usually has serious significance. It indicates relative cardiac ischemia, that is, a blood supply insufficient to meet the demands. This most frequently means coronary artery narrowing and probably spasm.

If pain occurs only with markedly increased demands, its significance may be less serious. This, for example, may be the case when it appears only after excessive muscular activity or in the presence of thyrotoxicosis, paroxysmal tachycardia or other disturbances of cardiac rhythm. In these instances the cause may be corrected and the angina controlled.

If mild activity or excitement bring on pain, or if symptoms are increasing in frequency with a decreasingly severe existing cause, or with none, the implications are much more serious. Any attacks having a duration of over fifteen to twenty minutes will probably cause some permanent myocardial damage. Such cases should usually be classified as coronary insufficiency or failure.

The abrupt onset of pain with exercise or emotion, its short duration, and its complete cessation with the institution of rest or exhibition of nitroglycerine, are important diagnostic points favoring angina. Essentially negative electrocardiographic findings are the rule. So-called coronary changes—ST depression and elevation, or T wave inversion—may be produced by exercise, but this maneuver is not recommended for routine practice because of rare mortality during the induced attack. Anoxia produced by inhalation of 10 per cent oxygen may be a safer procedure.

Coronary Insufficiency

Coronary insufficiency is differentiated from angina pectoris by the longer duration of the attack and in some instances by the altered character of the pain. The clear-cut picture of myocardial infarction does not follow. Shock is less severe; blood pressure changes are less marked; heart failure is less frequent; and fever, leucocytosis and increased red blood cell sedimentation rate are absent or much less conspicuous than in cases of myocardial infarction. Electrocardiographic changes occur, and may be the only signs of the condition. These abnormalities are usually maximal on the initial record and rarely progress as they do in cases with large myocardial infarction.

Acute episodes of coronary failure are frequently precipitated by factors which seriously reduce the coronary flow, such as prolonged tachycardia, heart failure, shock, or hemorrhage; or by factors which increase the work of the heart and its oxygen requirement, such as hypertensive crises, infection, or postoperative complications. Not infrequently the clinical features of these causal factors overshadow the event of coronary insufficiency. Its recognition then may depend only upon electrocardiographic study. One should bear the possibility in mind, particularly where cardiovascular disturbance is more severe or more prolonged than would be expected from the exciting cause. If demands on the myocardium are quickly reduced by rest, sedatives, and control of abnormal cardiac rhythm, and if circulation is restored by prompt treatment of shock or hemorrhage, extensive structural damage may be prevented.

Myocardial Infarction

Myocardial infarction usually presents a clear-cut clinical picture. The diagnosis is based upon the occurrence of prolonged precordial pain plus evidence of myocardial necrosis. Pain not infrequently has its onset during periods of rest or sleep rather than on exertion. Nitroglycerine does not relieve the pain, morphine in full doses being required for relief. Pain is usually associated with shock of varying intensity. Symptoms of cardiac insufficiency may quickly develop.

Fever, leucocytosis and increased sedimentation rate are constant signs of myocardial necrosis and may be an index of the extent of the heart damage. Friction rub occurs in from 15 to 30 per cent of cases. Electrocardiographic changes occur in a large percentage of cases, probably between 80 and 90 per cent, and this percentage may be increased by

the use of multiple chest leads. Several tracings should be taken over a period of observation to record changes.

The cause of mycardial infarction is usually acute coronary obstruction, but it may not be demonstrable pathologically, as evidenced by the studies of Blumgart. Therefore, the substitution of the term coronary obstruction for myocardial infarction is not correct. Still less correct is the use of the term coronary thrombosis to indicate myocardial infarction; for it has been found in other pathological studies that coronary obstruction is not caused by primary coronary thrombosis in the majority of instances. For instance, Horn and Finkelstein (Horn, H., and Finkelstein, L. E.: Arteriosclerosis of the Coronary Arteries and the Mechanism of Their Occlusion, *Am. Heart J.* 19:655 [June] 1940) found that intramural capillary hemorrhage into an arteriosclerotic plaque was the underlying pathologic mechanism of coronary obstruction in a larger number of cases (62.5 per cent) than primary coronary thrombosis (37.5 per cent).

Prognosis of Myocardial Infarction

Ideas regarding prognosis in myocardial infarction have also changed in recent years. The immediate mortality was previously thought to be about 50 per cent. Recent studies have shown a considerably lower mortality. This decrease is due not so much to any improvement in manner of treatment but rather to greater accuracy in diagnosis: many cases of mild infarction are now included, which previously would not have been recognized.

Rosenbaum and Levine (Rosenbaum, F. F., and Levine, S. A.: Prognostic Value of Various Clinical and Electrocardiographic Features of Acute Myocardial Infarction: Immediate Prognosis, *Arch. Int. Med.* 68:913 [Nov.] 1941) published a study of 208 patients judged to have suffered from their first attack of myocardial infarction. The immediate mortality (i.e., within one month of onset) was 33 per cent. Still lower mortality figures have been recorded, as those of Smith, et al. (Smith, C., Sauls, H. C., and Ballew, J.: Coronary Occlusion: A Clinical Study of 100 Patients, *Ann. Int. Med.* 17:681 [Oct.] 1942) who in 100 private patients had an immediate mortality (i.e., within twenty-one days) of 12 per cent, and a total mortality of 34 per cent. The majority of these cases died in subsequent attacks of "coronary occlusion."

A careful study of clinical course in relation to prognosis was made by Rosenbaum and Levine, but no infallible prognostic signs were found. Their studies indicate, as have others, that severe shock, extreme drop in blood pressure, or disturbance of heart function (arrhythmias, congestive heart failure) are bad prognostic signs. High and persistent fever or tachycardia are also bad signs. The patient's age and previous heart condition have a bearing upon the prognosis. The site of the infarct is much less important than previously suggested. The mortality in patients with anterior infarction was practically the same (30 per cent) as in those with posterior infarction (36 per cent).

The follow-up studies of cases of myocardial infarction made by the same authors (Rosenbaum, F. F., and Levine, S. A.: Prognostic Value of Various Clinical and Electrocardiographic Features of Acute Myocardial Infarction: Ultimate Prognosis, *Arch. Int. Med.* 68:1215 [Dec.] 1941) indicate that patients may return to a reasonably normal way of life for some years. The average survival period for 101 cases known to have died was forty-one months. One-fourth of these succumbed within one year, one-half within two years and three-fourths within five years. The remainder died after intervals ranging from five to twelve years. One living patient was still carrying on twenty-five years after the initial attack.

Recovery of activity was favorable in the group analyzed by these authors. These were records for 354 patients. Of these 30 per cent were able to return to full activity, 45 per cent to partial activity and 22 per cent to moderately restricted activity. Only 3 per cent were completely incapacitated.

Sixty-three per cent of all patients manifested angina pectoris some time after the initial attack of myocardial infarction, but only 28 per cent had subsequent congestive heart failure.

Summary of Practical Points

Beware of angina pectoris which occurs with increasing frequency and with less effort.

Increasing duration of anginal pain or change in its character usually means definite myocardial damage.

If permanent electrocardiographic changes are present a diagnosis of either coronary insufficiency or myocardial infarction should be made.

Prompt institution of rest to decrease circulatory demands will frequently prevent further myocardial damage.

Coronary insufficiency or atypical myocardial infarction may occur in association with other conditions which either increase circulatory demands or decrease coronary blood flow.

Causal factors such as paroxysmal tachycardia, febrile states, hemorrhage, and postoperative shock may likewise obscure the usual symptoms of coronary insufficiency.

Measures to reduce the circulatory demands and to increase coronary blood flow should be promptly applied in persons with known or suspected coronary artery disease who develop any of these conditions.

Adequate collateral circulation occurring in patients with pre-existing coronary arteriosclerosis or with cardiac hypertrophy from chronic hypertension or valvular disease explains the discrepancies between clinical diagnosis and pathological findings in many cases of coronary obstruction.

Myocardial infarction is the term which should be applied to the syndrome characterized by prolonged shocking precordial pain plus evidence of myocardial necrosis.

The prognosis in myocardial infarction, though it must be guarded, may be favorable not only for recovery from the initial attack but for restoration to at least moderate work capacity for a number of years.

S. E. DOOLITTLE, M.D.

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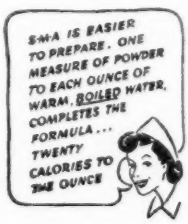
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RECENT ADVANCES IN SURGERY

SIMPLIFIED TREATMENT OF FRACTURES OF THE HUMERUS

The treatment of fractures of the humerus, and of the shaft in particular, has been in the past a difficult problem. They were often followed by unfavorable sequelae, such as non-union or permanent disability from joint stiffness as a result of prolonged immobilization in casts, splints or traction apparatus. No one method of treatment was much superior to another and all were more or less unsatisfactory.

In 1933 Dr. J. A. Caldwell[1] first advocated the use of the hanging plaster cast in the treatment of certain types of fractures of the humerus. Since that time the method has been enthusiastically adopted by an increasing number of surgeons. Results have been no less than startling. It seems to have brought the treatment of fractures of the humerus to an extremely simple and fool-proof stage.

The method is simplicity itself; it is merely the application of a loose fitting circular cast composed of three to four rolls of 4 inch plaster reaching from the wrist to a comfortable height in the axilla. The cast functions by gravity traction, being suspended near the wrist by a sling around the neck. A piece of felt is embodied in the cast and placed over the ulnar styloid. The elbow is bent at a right angle and the forearm placed in mid pronation. A pad in the axilla or near the elbow, shortening or lengthening the sling, will easily correct any undue angulation of the fragments. The patient is instructed as to the modus operandi of the treatment and warned to keep the cast dependent at all times and not allow it to rest on the arm of a chair or other convenient ledges. Manipulation is occasionally necessary before the cast is applied, but in most cases satisfactory reduction will automatically take place. The method is applicable to nearly all fractures of the humerus except those involving the supracondylar area.

First impressions of the method are invariably the same—it is thought that immobilization is not attained. This is undoubtedly true, but the excellent reports of substantial series in the literature and the results in a small number of personal cases, two of them compound, have been highly satisfactory to say the least. Not only are the results as far as rapid union and alignment good, but the patient is made comfortable and ambulatory far more rapidly than with any other method. Stiffness of shoulder and other joints are minimal since active motion is permitted and possible almost at once. Complicated and expensive casts and splints are eliminated. In these days of crowded hospitals, and in the event of another blitz, these are no small factors.

In short, it is a simple, effective method of treatment that requires a fraction of the special knowledge and time formerly allotted to the problem of a fractured humerus.

C. M. BURGESS, M.D.

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CLINICO-PATHOLOGIC COMMENT

REVERIES OF A SENESCENT PATHOLOGIST

Bacteriology versus Histopathology

Bacteriology is the step-child of the average clinico-pathological laboratory; histo-pathology is the pampered, spoiled darling. All this is true for quite a number of reasons but primarily for two. First, the director of the laboratory is usually not well qualified in bacteriology, for he took his inadequate course in that subject too early in his academic career to have the proper perspective of its clinical importance, and because that course probably was taught by a Ph.D., on the fringe of medicine, interested only in some abstruse problem of his own, unrelated to clinical medicine. During his interneship and residency in pathology, bacteriology was in the hands of some overworked technologist, so busy making culture media that she had no time to teach him the modern refinements. Secondly, the instruction he got as resident in pathology from the exalted professors was almost exclusively gross and microscopic pathology (most of it autopsy instruction from these professional, lineal descendants of Rokitansky and Virchow, who remain forever faithful unto Death). Further, histopathology is usually about the only thing the director of the laboratory can do better than any of his employed technologists. Histo-pathology is about the only branch of laboratory medicine that is immune from the encroachment of the technologist or the Ph.D. on the fringe of medicine, for it takes, and always will take, not only a degree of M.D. and training in clinical medicine, but an advanced training in pathology to differentiate between a neoplastic cell and an exudative one, or between a histiocyte and a fibroblast.

So usually, in the average laboratory—private, clinic, or hospital—histo-pathology gets the cream and the poor step-child, bacteriology, gets the skimmed milk.

Other factors also have helped bring this to pass. Long ago the municipal, state and federal public health authorities, who were not interested in neoplastic disease except from a statistical point of view, were quite properly very interested in the infectious diseases that might assume epidemic proportions, as well as in their etiologic factors—bacteria and the viruses. They established often quite competent laboratories which were available to the practitioners without fee or charge (taxes paid for all this) for the diagnosis of the enteric diseases, diphtheria, meningitis, tuberculosis, plague, typhus, pneumonia, tetanus, tularemia, actinomycosis, and now, more latterly, syphilis and, with vim, vigor and cultures, gonorrhea. The private practitioner of laboratory medicine ("laboratory medicine" really is as specialized a branch of the practice of medicine as is otolaryngology or surgery) who had to work for a fee to pay his technologists and feed his family could not compete with the free public health laboratory, so demands for bacteriologic examinations became more rare and he lost interest in the subject.

Besides, he had to keep on hand at all times a large variety of culture media, expensive, tedious to prepare, and prone to dry out, which became useless before a demand for it appeared.

Above and beyond all that, even more deficient in the science of bacteriology than the director of the laboratory was the clinician who patronized him. (The word "patronized" is used deliberately, with my tongue in my cheek.) The material which the average clinician brought to the laboratory for bacteriologic investigation would have made Pasteur or Koch tear each hair that remained to them.

These and other factors combined their malevolent influences to the end that now bacteriology is the step-child of the average clinico-pathological laboratory.

Parasitology

Parasitology, too, is on the wane; but who cares? It was usually a nasty, unsatisfactory, stinking job. With more soap and water, a higher standard of living, more efficient food inspection, screened houses, and highly efficient anti-rat campaigns such as we have had here in Hawaii, the importance of parasitology dwindles. Who cares whether 15 or 20 per cent of the citizens have a few encysted trichinae larvae in their bodies? Each also has a few warts, some nevi, and a few telangiectases equally harmful. But when the boys come home from Australia, New Zealand, Guadalcanal, Samoa, Cape Horn and Cape Hope, and way points, we may take a renewed in-

terest in this neglected subject. Hawaii sits tremblingly, watching the yellow fever virus and the vector of malaria.

Hematology

Hematology has been on the up and up. There are 57 varieties of methods for determining hemoglobin and of estimating normal percentages. And where there is argument, there is interest. When it was found that the liver that we used to feed to the cat would cure—or relieve—pernicious anemia, the clinician perked up his ears. And besides, a blood count was something ordered with ease, which gave the patient, by virtue of the prick that let the blood flow, assurance that something personal was being done for—or at least about—him, and gave the clinician time to digest the facts he had gathered. So today the "complete blood count" has become the mainstay of the laboratory—its very bread and butter, its pay roll, salary, unemployment tax, victory bond, war bond, income tax, personal property tax, real estate tax, narcotic tax, dividend tax, cigarette and liquor tax, war tax on club dues, social security, old age retirement—everything but labor union dues—and who knows, how long—how long? (Why can't we use the war as an excellent excuse for getting one tax and one tax only, predicated wholly on the ability of the individual to earn and pay it?)

Serology

Serology has been through quite a metamorphosis in the past fifteen years. "Serology" by common consent has come to mean the serologic diagnosis of syphilis*, and other important subdivisions have been almost forgotten; the Widal, Weil-Felix, Huddleson and blood grouping should properly be included in the term "serology." (Since the Seventh of December there has been quite a boom in blood grouping which followed the publicity of the Blood and Plasma Bank; most intelligent families in Hawaii are blood grouped down to the youngest member; it is fortunate that some are not so intelligent as to understand the Mendelian law of dominants and recessives.)

The day of the ten dollar Wassermann is as dead as Papa Wassermann himself. Along came Messrs. Michaelis, Sachs, Georgi, Meinecke, Kolmer, Eagle, Kline, Kahn, Hinton, Laughlen, Ide, and others too numerous to mention, who increased the specificity and sensitivity of the test, and decreased the technical difficulties until almost any office nurse was tempted to try her hand at the serologic diagnosis of syphilis.

*"STS," serologic test for syphilis (Joseph Earl Moore). —Ed.

Today sera for the diagnosis or exclusion of syphilis that reach the average private laboratory are derived from that laboratory's usual patrons, or from patients who have had positive or controversial reactions at the plasma bank, the board of health, the industrial or insurance group,—and they are submitted for personalized investigation and a sort of supreme court decision. Serologic technique has become so refined and so accurate that syphilis is again in danger of becoming a serologic reaction rather than a disease. It is a wise—or fortunate—serologic laboratory that makes its reports only to a trained syphilologist, and not to the patient or to a general practitioner.

Along with the simplified technique, and working toward the same end as concerns the private laboratory, came the establishment of serologic service by the public health laboratories—without charge—for now the powers that be, in Washington, had decreed that syphilis was a national menace. There are, however, today still many people who shy away from the free serology where the records might inadvertently be open to unauthorized eyes. (I am reminded of the public health records seen by a friend of mine in the city of Rome, Italy, quite some years ago, on which were inscribed the positive serologic reactions of and the treatment received by an at that time inconspicuous, underpaid newspaper reporter by the name of Benito Mussolini. Possibly his gastric carcinoma of more than four recent years' standing is in reality nothing but the gastric crises of tabes).

So today the serologic diagnosis of syphilis, by both complement fixation and precipitation methods, is in every laboratory a very live subject, moderately remunerative, and therefore an average, well behaved normal child—not the step-child, and not the pampered darling.

Chemistry, Photelometric

Clinical chemistry! What a bore, what a threat, blood chemistry used to be, and now—what a pleasure.

In the days when Dr. Archie Sinclair* and I were vying with each other to see who could practice the most accurate and progressive laboratory medicine here in Hawaii nei, blood chemistry came over the Hawaiian horizon like a three-masted schooner, slow but sure. Technical difficulties were many. Pure reagents were difficult to secure. Cork stoppers permitted evaporation. When one substance was to be investigated—for example, non-protein nitrogen—all steps had to be taken in para-

*Deceased.—Ed.

llel with a standard of known nitrogen content. And when the reactions were complete and color developed, the colors of the unknown and the standard had to be compared visually in a comparative colorimeter. There were so many sources of inaccuracy that the laboratory quailed every time it got a request for a blood chemistry. And when the reaction was based, not on comparative colorimetry, but on titration with an indicator, the elusive end point gave the laboratory personnel something to worry about during white nights.

All of that has been changed by the electric photocolorimeter. This machine, with any constant colored solution, always gives the same reading on the milliameter. Known standards of vary strengths are put through the appropriate technique once, and the readings recorded. Thereafter only the unknown need be treated, read in the machine, and its concentration calculated from the previous calibration.

This has permitted a greater volume of work with increased accuracy and less cost, and has given rise to many new technical procedures. So many blood chemical analyses are now available that the clinician is hard put to keep up with them and acquire dexterity in the interpretation of the results. The really honest clinician does not pretend to remember these normal values and the range of pathological deviations; he keeps a list of them under his desk blotter and in his favorite nook in the hospital. The scope of this work may be realized when one surveys a list of practical quantitative procedures available, which includes N.P.N., creatinine, urea, uric acid, blood sugar, serum proteins (including partition into albumin and globulins), serum and urine calcium, blood, urine and spinal fluid concentration of all the sulfa compounds, spinal fluid proteins, bilirubin (with accurate quantitative partition of direct from indirect), urobilinogen, chlorides, serum phosphorus, serum phosphatase, P. S. P. excretion, hemoglobin, and red cell fragility—quite an imposing list!

William S. Hoffman in the September 1942 issue of the American Journal of Clinical Pathology gives a bibliographic list, in his discussion of recent advances in photelometric clinical chemistry, of 149 such methods which are accepted or under study. It is a most valuable index for any one interested in clinical chemistry.

It is, then, obvious that clinical chemistry is in its heyday and not at all a neglected child of the laboratory. If I had a child in this day and age (God forbid!) I would dedicate it to clinical chemistry as the most hopeful field of medical usefulness.

E. A. Fennel, M.D.

HAWAII SOCIETY OF CLINICAL PATHOLOGISTS

The Hawaii Society of Clinical Pathologists held its second tumor seminar on the evening of Feb. 20, 1943, at Tripler General Hospital. Sections from 10 cases, previously mailed to the men attending, were projected upon a screen and the cases discussed. Following the meeting refreshments, in the form of beer and sandwiches, were provided by the Army. The following doctors were present: A. Majoska, Louis Hirsch, E. A. Fennel, Harry Arnold, Jr., H. M. Johnson, I. L. Tilden, Major R. C. Wadsworth, Lt. Col. C. S. Moran, Lt. H. S. Bernet, Capt. O. Carp, Capt. De Oreo, Capt. D. Adler, Lt. Cmdr. L. E. Rector, Lt. Cmdr. C. R. Jensen, Lt. Cmdr. E. M. Butt and Major Carl F. Tessmer.

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PROGRESS REPORT

Dr. Baehr's Visit

The outstanding event since the last report was the visit of Dr. George Baehr, Chief Medical Officer of the National Office of Civilian Defense. He visited the Territory for two weeks, arriving here March 10, and made an inspection of the major medical installations on Oahu and the outside islands and held many conferences with department heads in the non-medical services of the O.C.D. with a view to improving and coordinating their control. His report has not yet been published, but he publicly expressed his approval of the general medical set-up and felt that it should continue along the same lines with minor changes in control and organization only. He particularly emphasized the fact that in England where greater experience has been had than in any other place, they have found it eminently desirable to have medical personnel and equipment at their posts of duty and not outdoors during air raids, until an incident has been reported to the control center which necessitates the dispatching of a specific unit to care for casualties. The streets of London are deserted during air raids except for wardens and fire workers and for ambulances or other vehicles traveling on specific duties. His remarks will undoubtedly be reported more extensively elsewhere. His visit was of inestimable value to the medical section of the O.C.D.

Additional Hospital Projects

Dr. Baehr also made a thorough inspection of various hospitals which have been awarded grants under the Lanham Act for addition of facilities with a view to endeavoring to expedite their construction. He also surveyed the need for classroom facilities for Queen's Hospital Training School for Nurses, an emergency ward for the evacuation of patients from Liho I necessitated by the movement of surgery to the ground floor, and the need for a small isolation unit at Queen's to permit the use of the present contagious-disease ward for kitchen purposes. He expressed himself as being of the opinion that these three projects were highly necessary and proper, and he will endeavor to obtain authority from the Interior Department for their construction when he returns to Washington. He also studied carefully the increasing deficit in available obstetrical hospital beds in the city and the project for remedying this situation by the construction of a 30 bed obstetrical unit adjacent to St. Francis Hospital. This project has been disapproved by the Interior Department, but Dr. Baehr expressed himself as convinced of its urgent necessity and stated that he would endeavor to persuade the authorities of the Interior Department that it should be done at once.

Additional Contagious Hospital Beds

Since the last report, two 25 bed contagious wards have been built makai of the Kuakini Hospital to be held in reserve for the care of contagious diseases in the event of a sudden outbreak of an epidemic. Additional facilities have been arranged which would enable this unit to double its size in 24 hours if the need arises. One hundred hospital beds have also been constructed as an annex to the Wahiawa O.C.D. Hospital for the care of ambulant tuberculosis cases, 112 of which are now hospitalized at old Tripler. This hospital will begin to function as soon as a few items of essential equipment have been obtained.

Women's Ambulance Service Patrol (WASPS)

A group of sixty business women in Honolulu have been trained by the Provisional Ambulance Battalion of the Army for the driving of ambulances and the care and loading of casualties. The Honolulu Police Department and the Automotive Service Company assisted in the technical training of these women and the doctors of the Emergency Medical and Ambulance Service gave them their course in casualty care. They are attached for administration to the Medical Department of the Army and available to military or civilian communities as the need may arise.

High School Victory Corps

A group of high school boys have been recruited by the Department of Public Instruction under the direction of Mr. Thomas B. Vance and are staffing the Aid Stations at night and also serving as standby manpower for them in the day time. This is a part of the National High School Victory Corps program which it seems will probably be expanded into many fields of assistance to the war effort.

Evacuation Plans

A meeting of doctors, nurses and others interested in the plans for medical care of evacuees from the coastal plains of the North Sector of Oahu was held at the Wahiawa Hospital, October 11, 1942. At this meeting there was discussion of the general

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1. Shop early in the week and plan purchases as much as possible for the whole week, avoiding rush and "peak" hours in your grocery.
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3. Shop early in the day, not at closing time. Your grocer has lots of bookkeeping and cleaning to do in a hurry before blackout.

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plan and of the details for the operation of the Emergency Medical Service in the event that these areas have to be evacuated to the plateau. Necessary facilities have been provided at Wahiawa for the expansion of this hospital to a 500 bed institution and additional essential hospital facilities are provided and stored at Kunia School, Kipapa School, Waipio Camp, and Waimano Home; all of these being major evacuation centers.

Civilian Control

The return of many civil functions to the civil government has resulted in a large increase in the duties and responsibilities of the O.C.D., since several of these functions of government have been turned over to them. So far the medical department has been charged with the administration of control of medical supplies and poisons and of laboratories. There has been virtually no change in the systems of either of these administrations which will carry on under civil management instead of military as formerly. Changes in personnel, location and function of laboratories are required to be registered with the Territorial Medical Director, but information already on file is not required to be repeated.

"Unfreezing"

The release of the control of hospital employees, permitting nurses and non-professional hospital employees to discontinue work altogether or to seek work in other hospitals has not yet resulted in any large loss of hospital personnel. Hospital heads, however, generally feel that it is likely to do so. There has been considerable apprehension among those responsible for the administration of hospitals as to what will ultimately happen in this regard.

Military Personnel in Civilian Hospitals

Almost from the beginning of the war it has from time to time been necessary for the Medical Department of the Army to supply medical officers, nurses and enlisted men to complement the staffs of civilian hospitals and to assist the Board of Health in the carrying out of their functions. With the return of government to civil control, some of this personnel will probably be withdrawn from their civilian duties. The shortage of physicians willing and able to perform these duties makes the replacement of Medical Officers from civilian sources almost impossible and the inability of the nurses' recruitment organization to obtain faster transportation for nurses from the mainland makes the shortage of nurses worse than it has ever been. Several hospitals in the Territory would have to entirely or partially close their doors if these army nurses are withdrawn unless nurses in civilian life who are now unemployed or working at other jobs take their places. Large numbers of registered nurses are working at occupations not connected with their profession because they are earning considerably larger pay and have much easier work. Many of these women have agreed to report to hospitals in the event of enemy action, but for lull time operation they are of course of no assistance to the hospitals. Almost all of the hospitals in the Territory are conducting courses for nurses' aides and endeavoring in every way to decrease the load upon the nursing staff, but the problem remains a serious and acute one. As has been repeatedly pointed out the medical profession can be of tremendous assistance in this acute situation by avoiding the use of special nurses, except when they are actually necessary for the patient's welfare and by sparing the staff nurses from non-essential duties in the care of patients. It is highly probable that the nursing shortage will continue for the duration and may become much more serious than it is now.

On February 16th, Miss Margery J. MacLachlan, from Decatur, Illinois, was employed by the O.C.D. as Hospital Consultant and Supervisor. Her services are available to any hospital in the Territory upon request to assist in utilizing their nursing staff to the best possible advantage. She is in the office of Mrs. Thelma Akana, Territorial Supervisor of Nursing Activities for the O.C.D.

Outside Islands

The O.C.D. Emergency Hospital at Huleia on Kauai has been completed, equipped and staffed. The nursing staff of the hospital, pending the arrival of patients, is being utilized as a pool of nurses which may fill emergency needs in the community with certain restrictions. The primary function of this group of nurses is to staff the hospital for the care of civilian casualties and secondarily to assist in meeting nursing emergencies and to carry out educational programs, etc.

The hospital at Waimea, Kauai, is complete and will be occupied within a week or so. It is built up the canyon at a distance above the confluence of Waimea and Makaweli rivers and thus rendered safe from attack from the sea. It will be operated by the doctor and staff of the Waimea Hospital.

The O.C.D. Emergency Hospital at Olaa on Hawaii has been completed and is occupied. It is being operated by the Olaa Plantation physician and at present is staffed entirely with Army nurses from the U.S. Army Hospital at Mountain View.

The new wing of the Hilo Memorial Hospital has been equipped so that it has a potential capacity of 100 casualties.

H. L. ARNOLD, M.D.
Territorial Medical Director

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COUNTY SOCIETY REPORTS

HAWAII COUNTY MEDICAL SOCIETY

The 211th meeting of the Hawaii County Medical Society was called to order on January 19, 1943, at the Hilo Memorial Hospital by President Patterson. Sixteen members and eight guests were present.

Dr. A. Orenstein, director of the Emergency Medical Division of the O.C.D., reported on the past activities and present status of the program. He reviewed the set-up of the casualty stations which had its inception with the local medical society and traced its growth to the present scheme of operation under the O.C.D. He stated that these stations have been, and are still, manned entirely by volunteers, that the general plan had been to decentralize these stations, and that the peak of interest was reached some 4-5 months ago since which time there has been some reduction in attendance of the staff. He stressed that the difficulties encountered were chiefly due to inadequate equipment and supplies, especially in regard to auxiliary light plants, but that this problem has been solved in the last 5-6 months; he also pointed to the fact that these supplies have been, and will continue to be, distributed equitably, the determining factors being distribution of population and the index of possibility of attack. He posed a problem in connection with the plan of operation of these stations, which had been brought to his attention by a circular letter from O.C.D. headquarters in Washington; namely, should these stations be abolished and be replaced by a central unit manned by professional units and rescue squads whose training would be devoted chiefly to immediate first aid and shock treatment? He believed that the present set-up was the preferable arrangement.

Dr. C. Bruce Brown, director of the Blood-Plasma Bank for this island, gave a statistical report of the activities of the bank ending December 31, 1942. He stated that Dr. Pinkerton, director of the Territorial Bank, recently visited the island and suggested (1) that all liquid plasma over one year old be discarded, (2) that all plasma processed in the future be stored in the frozen state, and (3) that a full-time person be employed by the local bank to recruit donors. Dr. Brown reported that there had been a waning in the response of donors. He believed that an adequate supply of blood and plasma could be obtained by the use of a mobile unit and stated that plans were now in effect to obtain such a unit.

Dr. Patterson reported on the progress of the O.C.D. Hospital at Olaa. He stated that the hospital would be occupied by February 1, that its capacity was 103 beds, and that the present plan called for the operation of the hospital by the Olaa Sugar Company. He further stated that in his plans for evacuation in the event of attack, only 7-8 patients were of the "obligatory-hospitalization" group, that this would leave 154 adult beds and 11 bassinets available for casualties in the old and new plants. He stated that 3 surgeries and an obstetric wing of 18 beds were available in the new unit, that the water supply was sufficient and auxiliary sources of electrical power had been furnished. The present plans, he concluded, included the formation of a pool of 8 nurses who would serve as a unit from which hospitals on the island could draw.

Dr. L. L. Sexton reported on the preparedness of the Hilo Memorial Hospital to care for casualties. His plans included: (1) evacuation of mobile cases by the installation of ramps and of immobile cases into the basement, (2) splinter-proofing and ventilation which have been completed, (3) erection of an auxiliary surgery and sterilization facilities in the basement, and (4) the division of professional and non-professional staff into teams composing the following: (a) triage, (b) shock, (c) major surgery, (d) minor surgery. He stated that the problem of transportation teams as evidenced in the last trial run in July, 1942 was nearing solution. He reiterated that the chief problem concerning the care of casualties was the insufficiency of professional personnel including doctors, nurses, anesthetists and laboratory technicians.

An open discussion of the various functions and activities of the emergency medical division followed. Col. Wollgar, Acting District Surgeon and Surgeon of the Hawaii Service Command, was of the opinion that the entire program was functioning satisfactorily, that in the event of attack, there would be collaboration between the military and civilian medical organizations.

No discussion took place regarding the advisability of centralizing aid stations in conformance with the circular letter mentioned by Dr. Orenstein. It was the consensus that another trial run was indicated in the near future to determine the efficiency of the aid stations and the hospital units.

Regarding the blood-plasma bank, several lines of discussion concerning the insurance of better donor response occurred: (1) it was suggested by Dr. S. R. Brown that a stimulus of the general public would be provided by shipping to combat zones a specified amount of plasma at periodic intervals; (2) it was suggested by Dr. Leslie that the suggestion proffered by Dr. Pinkerton that a full-time recruiting person be employed by the local bank be followed; (3) it was generally agreed that a mobile unit would enlarge the supply of plasma.

The transfers of Drs. W. F. Leslie of Puumaile Home and R. P. Wippermann of Naalehu, both from the Honolulu County Medical Society, having passed the Board of Censors, were unanimously passed.

The 212th regular meeting of the Hawaii County Medical Society was called to order on February 16th, 1943, at the Hilo Memorial Hospital by President Patterson. Twenty members and nine guests were present.

Major Waldemar Sternberg, Chief of the X-Ray Department of the Mountain View Hospital, led the discussion. Members of the Society presented brief summaries of cases and exhibited x-rays. Major Sternberg discussed the differential diagnosis, from the roentgenographic viewpoint, of each case. Major Sternberg then exhibited a few x-rays of duodenal ulcer and bony structural anomalies.

Dr. Orenstein moved that the Secretary's report as mailed out to each member be approved without reading. Seconded by Dr. Phillips. Passed.

Captain Marcus Flinter of the local Board of Health discussed the epidemic of pertussis now on the island. He stated that vaccination was efficacious in the prevention of, and in the amelioration of symptoms of, pertussis. He requested that the Society request the Territorial Board of Health to provide pertussis vaccines for indigent cases. After considerable discussion, it was moved by Dr. S. R. Brown, seconded by Dr. Arimizu, that the Society request the Territorial Board of Health, through Captain Flinter, to furnish prophylactic vaccine against pertussis. Carried.

A letter from Dr. Richard K. C. Lee, Acting Territorial Commissioner of Public Health, regarding the resolution, adopted by the House of Delegates of the American Medical Association, stating that commercialized prostitution be eliminated, that medical inspection of prostitutes was untrustworthy, inefficient and unlawful, was read. Dr. Lee stated that several local medical societies have passed similar resolutions and recommended the adoption of such a resolution by the Society. Considerable discussion followed. The Venereal Disease Committee reported that the present scheme of rigid control and close medical supervision of prostitutes was effective in the control of venereal disease at present, that further scientific study should be made on the present mode of control, that the question should be given mature consideration and considerable open discussion before such a resolution should be adopted by the Society. Captain Flinter corroborated these statements and believed that, in view of the facts that there existed no carriers or transient prostitutes on this island, such a resolution would be out of order at the present time. Dr. Carter moved, seconded by Dr. Phillips, that the discussion of this problem be postponed.

M. LEONG CHANG, M.D., reporting.

INDEX TO ADVERTISERS

Abbott	211	Mead Johnson & Co.	Back cover
American Factors, Ltd.	226	Merck & Co., Inc.	205
Don Baxter Co.	206	Parke, Davis & Company	208
Eli Lilly & Company	190	Petrogalar Laboratories, Inc.	Second cover
E. R. Squibb & Sons	201	Philip Morries & Co., Ltd.	189
Galen Company, Inc.	216	Sandoz Chemical Works	213
Holland-Rantos Company, Inc.	212	Sharp & Dohme	185
Kodak Hawaii	222	Upjohn	202
Lederle Laboratories, Inc.	186	Watkins Printery	221
Love's Biscuit & Bread Co.	224	Winthrop Chemical Company, Inc.	219
McArthur & Summers Pharmacy	220	Wyeth & Brothers, John	Third cover
		SMA Corporation	214